ADDENDUM NO. 1

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

Generator Replacement – Saint Louis County Habilitation Center 2312 Lemay Ferry Road Saint Louis, MO 63125 PROJECT NO. M-2328-01

Bid Opening Date is: June 26, 2025 (Not Changed)

Bidders are hereby informed that the construction Plans and/or Specifications are modified as follows:

SPECIFICATION CHANGES:

1. Section 26 32 13 - Engine Generators

Paragraph 2.5 A – The Load Bank Circuit Breaker can be omitted from the Docking Station because the generator will have an output circuit breaker.

Paragraph 2.5 B – Add item 5: Generator Circuit Breaker shall be equipped with Energy Reducing Maintenance function (ERMS) and be of the Low-Voltage Switchgear Integrated Assembly (LSIA) type.

Paragraph 2.7 A – Change the generator outdoor housing from aluminum to steel.

2. <u>Section 26 36 00 – Transfer Switches</u>

Paragraph 1.1 A 1 a 1.) – Remove the Service Entrance requirement from the Automatic Transfer Switch (ATS).

Paragraph 2.2 F 3 - Change the description of the new ATS from 4-pole to 3-Phase, 4-Wire.

Paragraph 2.4 D – Add item 6 for clarity: Temporary generator camloks to be male, load bank camloks to be female.

DRAWING CHANGES:

- 1. Drawing E0.1:
 - a. Revise General Note 4 as follows:

Remove mention of a generator "flame detector".

- 2. <u>Drawing E1.0</u>:
 - a. CLARIFICATION:

New Work Keyed note 15. For clarity remove mention of removing the existing ATS "from

ETR housing". The new ATS should be provided in the factory housing in order to maintain the UL listing and warranty.

b. Revise Demolition Keyed Note 2 as follows:

Added direction to arrange with owner's fuel provider and arrange for them to test and polish the existing fuel when transferring it to the new tank.

GENERAL:

- 1. Copy of Attendance Record is attached for information only. Changes to, or clarification of, the Bid Documents are only made as issued in the Addenda.
- Please contact Mandy Roberson, Contract Specialist, at 573-522-0074 or <u>mandy.roberson@oa.mo.gov</u> for questions about bidding procedures, MBE\WBE\SDVE Goals, and other submittal requirements.
- 3. The deadline for technical questions is June 19, 2025, at Noon.
- 4. Changes to, or clarification of, the bid documents are only made as issued in the addenda.
- 5. All correspondence with respect to this project must include the State of Missouri project number as indicated above.
- 6. Current Plan Holders list available online at: <u>Bid Listing/ Electronic Plans (Projects</u> <u>Currently Bidding) | Office of Administration (mo.gov)</u> M2328-01 Replace Generator, Program Center-South St. Louis County Habilitation Center
- 7. Prospective Bidders contact American Document Solutions, 1400 Forum Blvd Suite 7A, Columbia MO 65203, 573-446-7768 to order official plans and specifications.
- 8. All bids shall be submitted on the bid form without additional terms and conditions, modifications, or stipulations. Each space on the bid form shall be properly filled including a bid amount for the alternates. Failure to do so will result in rejection of the bid.
- 9. MBE/WBE/SDVE participation requirements can be found in DIVISION 00. The MBE/WBE/SDVE participation goals are 10%/10%/3%, respectively. Only certified firms as of the bid opening date can be used to satisfy the MBE/WBE/SDVE participation goals for this project. If a bidder is unable to meet a participation goal, a Good Faith Effort Determination Form must be completed. Failure to complete this process will result in rejection of the bid.

ATTACHMENTS:

- 1. Specification Section 263213 Engine Generators
- 2. Specification Section 263600 Transfer Switches
- 3. Drawing E0.1 Electrical Seismic Block, Legend and Notes
- 4. Drawing E1.0 Electrical Floor Plan Demolition and New Work
- 5. Prebid sign in sheet

1. GENERAL

1.1 WORK INCLUDES

- A. Base Bid:
 - 1. Electrical Contractor Provide:
 - a. Title 19 compliant packaged engine-generator sets for standby power supply with the following features:
 - 1.) Diesel engine.
 - 2.) Unit-mounted cooling system.
 - 3.) Unit-mounted control and monitoring.
 - 4.) Performance requirements.
 - 5.) Outdoor enclosure.

1.2 RELATED WORK

- A. Specified elsewhere:
 - 1. Section 26 36 00 "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.
 - 2. Section 26 05 43 "Underground Ducts and Raceways for Electrical Systems" for underground conduit duct banks between generator, Automatic Transfer Switch and building.

1.3 DEFINITIONS

A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:
 - 1. Thermal damage curve for generator.
 - 2. Time-current characteristic curves for generator protective device.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components,

and location and size of each field connection.

- 1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
- 2. Indicate that generators are seismic rated and factory shake table tested.
- 3. Wiring Diagrams: Power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer Seismic Qualification Certification: Submit certification that engine-generator set, batteries, battery racks, accessories, and components will withstand seismic forces defined in Section 260548.16 "Seismic Controls for Electrical Systems." Include the following:
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
 - b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
 - 4. See Editing Instruction No. 3 in the Evaluations for discussion about prototype-unit testing.
 - 5. Certified summary of prototype-unit test report.
 - 6. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
 - 7. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
 - 8. Report of sound generation.
 - 9. Report of exhaust emissions showing compliance with applicable regulations.
 - 10. Certified Torsional Vibration Compatibility: Comply with NFPA 110.
- B. Field quality-control test reports.
- C. Warranty: Special warranty specified in this Section.
- 1.6 CLOSEOUT SUBMITTALS
 - A. Operation and Maintenance Data: For packaged engine generators to include

in emergency, operation, and maintenance manuals. Include the following:

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
 - 1. Maintenance Proximity: Not more than one hours' normal travel time from Installer's place of business to Project site.
- B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 30 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.
- C. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- E. Comply with ASME B15.1.
- F. Comply with NFPA 37.
- G. Comply with NFPA 70.
- H. Comply with NFPA 99.
- I. Comply with NFPA 110 requirements for Level 1 emergency power supply system.
- J. Comply with UL 2200.
- K. Comply with IBC Seismic Rated Unit
- L. Engine Exhaust Emissions: Comply with applicable state and local government requirements.

1.8 PROJECT CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Using Agency or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:
 - 1. Notify Construction Manager and Using Agency no fewer than two days in advance of proposed interruption of electrical service.

- B. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - 1. Ambient Temperature: Minus 15 to plus 40 deg C.
 - 2. Relative Humidity: 0 to 95 percent.
 - 3. Altitude: Sea level to 550 feet.

1.9 COORDINATION

A. Coordinate size and location of concrete bases for package engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 5 years from date of Substantial Completion. Warranty shall be Comprehensive without deductibles.

2. PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Caterpillar; Engine Div.
 - 2. Blue Star Power Systems, Inc.
 - 3. Generac Industrial Power

2.2 ENGINE-GENERATOR SET

- A. Factory-assembled and -tested, engine-generator set.
- B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.
- C. Capacities and Characteristics:
 - 1. Power Output Ratings: Nominal ratings as indicated, with capacity as required to operate as a unit as evidenced by records of prototype testing.
 - 2. Output Connections: Three-phase, four wire.
 - 3. Nameplates: For each major system component to identify manufacturer's

name and address, and model and serial number of component.

- D. Generator-Set Performance:
 - 1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
 - 2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
 - 3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
 - 4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
 - 5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
 - Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
 - 7. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
 - 8. Start Time: Comply with NFPA 110, Type 10, system requirements.
 - a. Provide permanent magnet excitation for power source to voltage regulator.
 - 9. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.3 ENGINE

- A. Fuel: Fuel oil, Grade DF-2.
 - 1. ULSD
- B. Rated Engine Speed: 1800 rpm.
- C. Engine frequency shall be set at 60.1 Hz.
- D. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm.
- E. Lubrication System: The following items are mounted on engine or skid:
 - 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers

and smaller while passing full flow.

- 2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
- 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- F. Engine Fuel System:
 - 1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
 - 2. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.
- G. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity.
- H. Governor: Adjustable isochronous, with speed sensing.
- I. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.
 - 1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
 - 2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 100 percent load condition.
 - 3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
 - 4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 - 5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.
 - a. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- J. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.
- K. Air-Intake Filter: Standard-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

- L. Starting System: 24-V electric, with negative ground.
 - 1. Components: Sized so they will not be damaged during a full enginecranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
 - 2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
 - 3. Cranking Cycle: As required by NFPA 110 for system level specified.
 - 4. Battery: Adequate capacity within ambient temperature range specified in Part 1 "Project Conditions" Article to provide specified cranking cycle at least three times without recharging.
 - 5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
 - 6. Battery Compartment: Factory fabricated of metal with acid-resistant finish. Thermostatically controlled heater shall be arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in Part 1 "Project Conditions" Article. Include accessories required to support and fasten batteries in place.
 - 7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
 - 8. Battery Charger: Current-limiting, automatic-equalizing and floatcharging type. Unit shall comply with UL 1236 and include the following features:
 - a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
 - c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
 - d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
 - e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
 - f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.
- M. Base-Mounted Fuel Oil Tank: Factory installed and piped, complying with

- UL 142 fuel oil tank. Features include the following:
- 1. Tank level indicator.
- 2. Capacity: Fuel for minimum 96 hours' continuous operation at 100 percent rated power output.
- 3. Vandal-resistant fill cap.
- 4. Containment Provisions: Comply with requirements of authorities having jurisdiction.

2.4 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.
- B. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.
- C. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.
- D. Indicating and Protective Devices and Controls: As required by NFPA 110 for Level 1 system, and the following:
 - 1. AC voltmeter.
 - 2. AC ammeter.
 - 3. AC frequency meter.
 - 4. DC voltmeter (alternator battery charging).
 - 5. Engine-coolant temperature gage.
 - 6. Engine lubricating-oil pressure gage.
 - 7. Running-time meter.
 - 8. Ammeter-voltmeter, phase-selector switch(es).
 - 9. Generator-voltage adjusting rheostat.
 - 10. Two subparagraphs below are optional devices.
 - 11. Fuel tank derangement alarm.

- 12. Fuel tank high-level shutdown of fuel supply alarm.
- 13. Generator overload.
- E. Indicating and Protective Devices and Controls:
 - 1. AC voltmeter.
 - 2. AC ammeter.
 - 3. AC frequency meter.
 - 4. DC voltmeter (alternator battery charging).
 - 5. Engine-coolant temperature gage.
 - 6. Engine lubricating-oil pressure gage.
 - 7. Running-time meter.
 - 8. Ammeter-voltmeter, phase-selector switch(es).
 - 9. Generator-voltage adjusting rheostat.
 - 10. Start-stop switch.
 - 11. Overspeed shutdown device.
 - 12. Coolant high-temperature shutdown device.
 - 13. Coolant low-level shutdown device.
 - 14. Oil low-pressure shutdown device.
 - 15. Fuel tank derangement alarm.
 - 16. Fuel tank high-level shutdown of fuel supply alarm.
 - 17. Generator overload.
- F. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.
 - 1. Remote Alarm Annunciator: Comply with NFPA 110 Level 1. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.
- G. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation and lockable per NEC.

2.5 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Load Bank Circuit Breaker: Molded-case, thermal-magnetic type; 100 percent rated; complying with NEMA AB 1 and UL 489.
 - 1. Tripping Characteristic: Designed specifically for generator protection at Unity Power Factor.
 - 2. Trip Rating: Matched to generator rating.

- 3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
- 4. Mounting: Adjacent to or integrated with control and monitoring panel.
- B. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.
 - 1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
 - 2. Trip Settings: Selected to coordinate with generator thermal damage curve.
 - 3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
 - 4. Mounting: Adjacent to or integrated with control and monitoring panel.
 - 5. Generator Circuit Breaker shall be equipped with Energy Reducing Maintenance function (ERMS) and be of the Low-Voltage Switchgear Integrated Assembly (LSIA) type.
- C. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground-fault. Integrate ground-fault alarm indication with other generator-set alarm indications.

2.6 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H.
- D. Oversized Generator Required for site load conditions: Minimum 450 kw @ 105C
- E. Oversized Generator Starting KVA minimum requirements: 800 SKVA at 20% voltage dip.
- F. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.
- G. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- H. Enclosure: Dripproof.
- I. Instrument Transformers: Mounted within generator enclosure.

- J. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.
- K. Adjusting control and monitoring panel shall provide plus or minus 5 percent adjustment of output-voltage operating band.
- L. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.
- M. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

2.7 OUTDOOR GENERATOR-SET ENCLOSURE

A. Description: Vandal-resistant, weatherproof aluminum steel housing, wind resistant up to 100 mph. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Instruments and control shall be mounted within enclosure.

2.8 VIBRATION ISOLATION DEVICES

A. Factory Standard Isolation Device conforming to IBC seismic testing.

2.9 FINISHES

A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.

2.10 SOURCE QUALITY CONTROL

- A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
 - 1. Tests: Comply with NFPA 110, Level 1 Energy Converters & IEEE 115.
- B. Project-Specific Equipment Tests: Before shipment, factory test enginegenerator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
 - 1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
 - 2. Full load run.
 - 3. Maximum power.
 - 4. Voltage regulation.
 - 5. Transient and steady-state governing.

- 6. Single-step load pickup.
- 7. Safety shutdown.
- 8. Report factory test results within 10 days of completion of test.

3. EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.
- B. Examine roughing-in of piping systems and electrical connections. Verify actual locations of connections before packaged engine-generator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.
- B. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.
 - 1. Comply with requirements for seismic control devices specified in Section 260548.16 "Seismic Controls for Electrical Systems."
 - 2. Comply with requirements for vibration isolation devices specified in this section.
- C. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.3 CONNECTIONS

- A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.4 IDENTIFICATION

- A. Identify system components according to Section 230553 "Identification for HVAC Piping and Equipment" and Section 260553 "Identification for Electrical Systems."
- 3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections:
 - 1. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
 - 2. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
 - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
 - c. Verify acceptance of charge for each element of the battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
 - 3. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
 - 4. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
- C. Coordinate tests with tests for transfer switches and run them concurrently.
- D. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- E. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
- F. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- G. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- 3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

END OF SECTION 26 32 13

1. GENERAL

1.1 WORK INCLUDES

- A. Base Bid
 - 1. Electrical Contractor Provide:
 - a. Transfer switches rated 600 V and less, including the following:
 - 1.) Service Entrance Automatic transfer switches.
 - 2.) Nonautomatic transfer switches.
 - 3.) Remote annunciation systems.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
 - 1. Single-Line Diagram: Show connections between transfer switch, power sources, and load.

1.3 INFORMATIONAL SUBMITTALS

- A. Manufacturer Seismic Qualification Certification: Submit certification that transfer switches accessories, and components will withstand seismic forces defined in Section 260548.16 "Seismic Controls for Electrical Systems." Include the following: (ACC 125A-Seismic Certification/Bracing)
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

- B. Field quality-control reports.
- C. Warranty: Minimum 2 year standard warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in other specification sections, include the following:
 - 1. Features and operating sequences, both automatic and manual.
 - 2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.
- B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
 - 1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
- C. Source Limitations: Obtain automatic transfer switch and remote annunciator through one source preferably from a single manufacturer.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- E. Comply with NEMA ICS 1.
- F. Comply with NFPA 70.
- G. Comply with NFPA 99.
- H. Comply with NFPA 110.
- I. Comply with UL 1008 unless requirements of these Specifications are stricter.
- 1.6 FIELD CONDITIONS
 - A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Using Agency or others unless permitted under the following conditions and then only after arranging to provide temporary elec-

trical service:

1. Notify Construction Manager and Using Agency no fewer than two weeks in advance of proposed interruption of electrical service.

2. PRODUCTS

2.1 MANUFACTURED UNITS

- A. Contactor Transfer Switches:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ASCO Power Technologies
 - b. Trystar.
 - c. Eaton.

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
 - 1. Where transfer switch includes internal fault-current protection, rating of switch and trip unit combination shall exceed indicated fault-current value at installation location.
 - 2. The Automatic Transfer Switch shall be UL listed in accordance with UL 1008 and be labeled in accordance with .025 and .050 second time based ratings, or appropriate short time rating(s) as applicable. Automatic Transfer Switches which are not tested and labeled with .025 and .050 time based ratings or appropriate short time ratings and have series of specific circuit breaker ratings only are not acceptable.
- C. Solid-State Controls: Repetitive accuracy of all settings to be plus or minus 2% or better over operating temperature range of minus 20 to plus 70 deg C.
- D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- E. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically in-

terlocked in both directions.

- F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Switch Action: Double throw; mechanically held in both directions.
 - 2. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts.
 - 3. Provide 4-pole 3-Phase, 4-Wire transfer switch so that the generator can be treated as a separately derived system.
- G. Neutral Switching: Where 4-pole switches are indicated, provide neutral pole switched simultaneous with phase poles.
- H. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations. Color-coding and wire and cable tape markers are specified in Section 260553 "Identification for Electrical Systems."
 - 1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated. Compression lugs are required per ACC 63 Non Standard or Compression Lugs.
 - 2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
 - 3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
- I. Enclosures: General-purpose NEMA 250, Type 1, complying with NEMA ICS 6 and UL 508, unless otherwise indicated.

2.3 AUTOMATIC TRANSFER SWITCHES

- A. Comply with Level 1 equipment according to NFPA 110.
- B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.
- C. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.
- D. Digital Communication Interface: Matched to remote annunciator to remotely monitor, control and connect to the power transfer switch (ACC.72EE2 Quad-Ethernet Module).
- E. Automatic Closed-Transition Transfer Switches: Include the following:
 - 1. Fully automatic make-before-break operation.

- 2. Initiation of No-Interruption Transfer: Controlled by in-phase monitor and sensors confirming both sources are present and acceptable.
- 3. The transfer switch shall be electrically operated and mechanically held. The electrical operator shall be a momentarily energized, single solenoid mechanism. Main operators which include overcurrent disconnect devices, linear motors or gears shall not be acceptable. The switch shall be mechanically interlocked to ensure only two possible positions, normal or emergency.
- 4. The switch shall be positively locked and unaffected by momentary outages, so that contact pressure is maintained at a constant value and contact temperature rise is minimized for maximum reliability and operating life.
- F. In-Phase Monitor: Factory-wired, internal relay controls transfer so it occurs only when the two sources are synchronized in phase. Relay compares phase relationship and frequency difference between normal and emergency sources and initiates transfer when both sources are within 15 electrical degrees, and only if transfer can be completed within 60 electrical degrees. Transfer is initiated only if both sources are within 2 Hz of nominal frequency and 70 percent or more of nominal voltage.

2.4 NONAUTOMATIC TRANSFER SWITCHES

- A. Operation: Electrically actuated by push buttons designated "Normal Source" and "Alternate Source." Switch shall be capable of transferring load in either direction with either or both sources energized.
- B. Double-Throw Switching Arrangement: Incapable of pauses or intermediate position stops during switching sequence.
- C. Nonautomatic Transfer Switch Accessories:
 - 1. Pilot Lights: Indicate source to which load is connected.

2. Source-Available Indicating Lights: Supervise sources via transfer-switch normal and alternate-source sensing circuits.

- a. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
- b. Emergency Power Supervision: Red light with nameplate engraved "Alternate Source Available."

c. Unassigned Auxiliary Contacts: One set of normally closed contacts for each switch position, rated 10 A at 240-V AC.

- D. Male Camlock Box for Temporary Generator:
 - 1. Camlocks to match standard rental industry cables.
 - 2. Portable generator start signal terminal strip.
 - 3. When connecting isolate the Existing Generator start wires from portable.
 - 4. Provide number of transfer poles to match the ATS it will feed.
 - 5. NEMA 3R.
 - 6. Temporary generator camloks to be male, load bank camloks to be female.

2.5 REMOTE ANNUNCIATOR SYSTEM

A. Functional Description: Remote annunciator panel shall annunciate conditions for indicated transfer switches. Annunciation to include the following:

1. Sources available, as defined by actual pickup and dropout settings of transfer-switch controls.

- 2. Switch position.
- 3. Switch in test mode.
- 4. Failure of communication link.
- B. Annunciator Panel: LED-lamp type with audible signal and silencing switch.
 - 1. Indicating Lights: Grouped for each transfer switch monitored.

2. Label each group, indicating transfer switch it monitors, location of switch, and identity of load it serves.

- 3. Mounting: Flush, modular, steel cabinet, unless otherwise indicated.
- 4. Lamp Test: Push-to-test or lamp-test switch on front panel.

2.6 SOURCE QUALITY CONTROL

A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

3. EXECUTION

3.1 INSTALLATION

- A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. See Section 260548.16 "Seismic Controls for Electrical Systems."
- B. Annunciator and Control Panel Mounting: Flush in wall, unless otherwise indicated.
- C. Identify components according to Section 260553 "Identification for Electri-

cal Systems."

3.2 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Using Agency if necessary to accommodate required wiring.
- B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- C. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
 - 1. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
 - a. Verify grounding connections and locations and ratings of sensors.
- C. Testing Agency's Tests and Inspections (NETA Testing to be provided by the General Contractor under separate contract from the Generator and ATS equipment provider.):
 - 1. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 3. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
 - a. Check for electrical continuity of circuits and for short circuits.
 - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
 - c. Verify that manual transfer warnings are properly placed.
 - d. Perform manual transfer operation.

- 4. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
- 5. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
 - a. Verify grounding connections and locations and ratings of sensors.
- D. Coordinate tests with tests of generator and run them concurrently.
- E. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory test completion.
- F. Remove and replace malfunctioning units and retest as specified above.
- G. Prepare test and inspection reports.
- H. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner. (Infrared scanning to be provide by the General Contractor under separate contract from the Generator and ATS equipment provider.):
 - 1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
 - 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - 3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Using Agency's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below.
- B. Coordinate this training with that for generator equipment.

END OF SECTION 26 36 00



	ELECTRICAL GENERAL NO	OTES: (A		RICAL SHE	ETS, THIS I	PROJECT.)		
	1. WORK SHALL COMPLY WITH THE LATEST LOCAL DISABILITIES ACT (ADA), NFPA 72, 90a AND 101 L	LLY ADOPTED CC LIFE SAFETY COD	DES INCLUDIN E AND LOCAL	IG BUT NOT LIMI AND STATE SEIS	TED TO THE 201 MIC CODES AN	5 IBC, 2014 NEC, 2015 D ORDINANCES.	5 IFC, 2015 IE	CC, GL
	2. MINIMUM WIRE SIZE SHALL BE #12 AWG COPPE PUBLIC AREAS ALL WIRING TO BE CONCEALED	R U.N.O. CONDU	T SHALL BE 3/4 SIBI F WITHIN	4" MINIMUM EMT WALLS AND ABC	IN DRY AREAS,	GRS IN DAMP OR WE	T AREAS AN	D SCH
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	3. PROVIDE SEPARATE, INSULATED GROUNDING C	CONDUCTORS WI	TH PHASE COM	NDUCTORS FRO	M THE ELECTRI	CAL SOURCE. DO NO	T UTILIZE TH	IE CON
	4. COORDINATE WITH THE GENERATOR PROVIDE PROGRAMING TO GENERATOR FLAME DETECTOR	R FOR REQUIREN	ENTS ON ALL FACP AND SE	WORK CONCER	NING THE INSTA ENETRATIONS.	ALLATION. PROVIDE	POWER AND	FIRE A
	5. NO CIRCUIT BREAKER PROVIDED OR UTILIZED I	N THIS PROJECT	IS TO BE LOAD	DED BEYOND 809	% AMPACITY UN	LESS CIRCUIT BREAK	KER IS STATE	ED TO E
AMFER	6. PLACEMENT OF ELECTRICAL DEVICES SHOWN (INSTRUCTIONS FOR REQUIREMENTS.	ON DRAWINGS AF	RE DIAGRAMM	ATIC ONLY. COO	ORDINATE FINAL	. PLACEMENT WITH C	WNER AND E	EQUIPN
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5 TRENCH DETAIL

E0.1 SEISMIC BLOCK, GENERAL NOTES, DETAILS & LEGEND

E0.1 SCALE: NO SCALE

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E2.0 ELECTRICAL ONE LINE DIAGRAMS

E1.0 FLOOR PLAN - DEMOLITION & NEW WORK

STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR
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DEPARTMENT OF MENTAL HEALTH
DEPARTMENT OF MENTAL HEALTH
DEPARTMENT OF MENTAL HEALTH GENERATOR REPLACEMENT SAINT LOUIS COUNTY HABILITATION CENTER
<section-header>DEPARTMENT OF MENTAL HEALTHGENERATOR REPLACEMENT SAINT LOUIS COUNTY HABILITATION CENTER2312 LEMAY FERRY ROAD SAINT LOUIS, MISSOURI 63125PROJECT LOCATION</section-header>
<section-header>DEPARTMENT OF MENTAL HEALTHGENERATOR REPLACEMENT SAINT LOUIS COUNTY HABILITATION CENTER2312 LEMAY FERRY ROAD SAINT LOUIS, MISSOURI 63125PROJECT LOCATIONPROJECT LOCATIONPROJECT # M-2328-01 SITE # 3626 FACILITY # 47630</section-header>
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2 OF 4 SHEETS

12/04/2024



PARTIAL ELECTRICAL FLOOR PLAN - DEMOLITION AND NEW WORK

REPLACE EXISTING GENERATOR. PROVIDE NEW JOINT COMMISSION TITLE 19 COMPLIANT, 350 KW DIESEL GENERATOR AND PAD TO START IN LESS THAN 10 SECONDS WITH ANIMAL RESISTANT SCREENING AND ABOVE GROUND BASE TANK SIZED FOR MINIMUM 96 HOUR RUN TIME PER SPECIFICATION SECTION 26 32 13 -ENGINE GENERATORS. FIELD VERIFY EXACT LOCATION WITH OWNER PRIOR TO PAD EXCAVATION.

2 PROVIDE CONCRETE UTILITY PAD WITH SEISMIC RATED ISOLATION ANCHORAGE. TOP OF CONCRETE TO BE LEVEL WITH PARKING LOT SURFACE. SOIL SAMPLING, EVALUATION AND PROVISION OF NEW CONCRETE BASE AND ASPHALT PATCHING IN AREA AROUND NEW GENERATOR LOCATION TO BE PROVIDED BY GENERA CONTRACTOR. CAREFULLY EXCAVATE SO AS TO NOT DISTURB EXISTING GENERATOR CONDUCTORS. REROUTE POLE LIGHT CONDUIT OUT OF PAD AREA AND PROVIDE NEW CONDUCTORS TO MATCH EXISTING.

STUB UP WITH GRS WHERE SHOWN IN GENERATOR SHOP DRAWINGS. PROVIDE NEW CONDUITS AND CONDUCTORS PER SHEET E2.0 ONE LINE DIAGRAM, SHEET E0.1 GENERAL NOTES AND SPECIFICATIONS.

DIRECTIONAL BORE OR TRENCH PER SPECIFICATION 260543 AND SHEET E0.1 GENERAL NOTES AND DETAILS PROVIDE ELECTRICAL GRADE SCHEDULE 80 PVC OR HDPE CONDUIT UNDERGROUND AND CONDUCTORS PER SHEET E2.0 ONE LINE DIAGRAM APPROXIMATELY 60'-0" TO GENERATOR FOR POWER AND CONTROL PER GENERATOR SHOP DRAWINGS. RESTORE DISTURBED SIDEWALKS, PAVEMENT OR SOIL SURFACES AND

5 PROVIDE CONCRETE PAD FOR DOCKING STATION. STUB UP WITH GRS INTO BASE OF DOCKING STATION.

6 CORE DRILL WALL AT DOCKING STATION SHOP DRAWING DESIGNATED LOCATION, PROVIDE SLEEVE-SEAL SYSTEMS, SEAL AIR AND WATER TIGHT AND CONTINUE POWER FEEDERS INTO BUILDING. PROVIDE TEMPORARY GENERATOR JACKET WATER HEATER AND BATTERY CHARGER 30 AMP, 2 POLE CIRCUIT AND CONVENIENCE OUTLET 20 AMP. 1 POLE CIRCUIT FROM NEW PANEL "P-3" FOR UNIT FURNISHED OUTLETS. PROVIDE DOCKING STATION WITH WITH 1200 AMP MANUAL TRANSFER SWITCH (MTS) AND INTEGRAL CAM LOKS IN NEMA 3RX HOUSING PER SPECIFICATION 263600 FOR CONNECTION TO TEMPORARY GENERATOR AND LOAD BANK ON OUTSIDE WALL TO SWITCH BETWEEN TEMPORARY AND NEW PERMANENT GENERATORS.

EXTEND EMT CONDUIT TO ABOVE DROP CEILING AND CONTINUE TO THE AUTOMATIC TRANSFER SWITCH (ATS) AREA IN ELECTRICAL ROOM 179. REMOVE CEILING GRID AND CEILING MOUNTED FIXTURES AS REQUIRED FOR CONDUIT INSTALLATION. SUPPORT CONDUIT FROM STRUCTURE PER SPECIFICATIONS AND SEISMIC CODES. DO NOT INSTALL CONDUIT WITHIN 1 1/2" OF BOTTOM OF ROOF DECK PER NEC 300.4-B-2-E. RE-INSTALL CEILING GRID AND CEILING MOUNTED FIXTURES AND CLEAN FOR A NEW APPEARANCE. SEAL CEILING PENETRATIONS WITH FIRE STOP CAULK TO RESTORE CEILING INTEGRITY.

PROVIDE 120/208V, 3P, 4W, 100 AMP MCB, 18 POSITION PANEL "P3" WITH TVSS PER SPECIFICATION SECTION 26 24 16 AND SHEET E2.0 ONE LINE DIAGRAM. REMOVE UNUSED 2 POLE CIRCUIT BREAKERS FROM KP-1 -14/16, 21/23 AND RETURN TO OWNER. MOVE CIRCUIT BREAKERS FROM 17, 19 TO 14, 16. PROVIDE NEW 100/3 CB AT KP-1-LEFT - 19/21/23. PROV. CONNECTION TO PANEL P3 FEEDER AND UPDATE PANEL DIRECTORY.

9 PROVIDE NEW GENERATOR CONTROL PANEL. VERIFY POWER AND CONTROL WIRING REQUIREMENTS WITH GENERATOR EQUIPMENT PROVIDER. PROVIDE 20 AMP, 1 POLE CIRCUIT FOR CONTROL POWER AND 30 AMP, 1 POLE CIRCUIT BREAKER AND (2) #10, #10 G. FOR GENERATOR JACKET WATER HEATER AND BATTERY CHARGER CIRCUIT. PROVIDE (2) #16 AWG FOR START SIGNAL, (2) #16 FOR EMERGENCY STOP, A SHIELDED TWISTED PAIR AND A CAT 5e COMMUNICATION CABLE IN (2) 1 1/4" C. FROM THE GENERATOR REMOTE ANNUNCIATOR TO THE ATS AND TO THE GENERATOR PER GENERATOR PROVIDER INSTRUCTION.

COORDINATE WITH GENERATOR MANUFACTURER AND PROVIDE NEW GENERATOR REMOTE ANNUNCIATOR WITH INTEGRAL AUDIBLE/VISUAL NOTIFICATION DEVICE. PROVIDE SIGNAL CONNECTION TO GENERATOR WITH BASIS OF DESIGN BELDEN 3106A AND 24VDC CONNECTION TO GENERATOR BATTERIES WITH (2) #14 AWG AND SUPPORTED BY J-HOOKS ABOVE ACCESSIBLE CEILING, IN MINIMUM 1" EMT WHERE INACCESSIBLE AND IN SCHEDULE 80 PVC OR HDPE OUTSIDE OR UNDERGROUND.

12 PROVIDE NEW CONCRETE BOLLARD TO PROTECT NEW DOCKING STATION PER SHEET E0.1, DETAIL #4.

REMOVE EXISTING GENERATOR EMERGENCY STOP BREAK GLASS PUSH BUTTON AND PROVIDE NEW EMERGENCY STOP BUTTON AND CONNECTION TO NEW GENERATOR CONTROLLER.

PROVIDE NEW CONCRETE BOLLARDS TO PROTECT NEW GENERATOR PER SHEET E0.1, DETAIL #4.

ONCE NEW GENERATOR IS OPERATIONAL AND TESTED, REMOVE 208/120V, 3P, 4W, 1200A, ATS FROM ETR HOUSING AND PROVIDE NEW CLOSED TRANSITION 1200A ATS, CONNECT TO NEW GENERATOR CABLES AND EXISTING NORMAL POWER SERVICE AND LOAD CONDUCTORS PER SHEET E2.0 ONE LINE DIAGRAM. MODIFY EXISTING PULL BOXES AND SECURE COVERS WITH NEW SHEET METAL SCREWS.

16 RELOCATE EXISTING ROOF ACCESS CAGED LADDER FROM BACK OF BUILDING TO THIS LOCATION.

ONCE THE NEW GENERATOR HAS BEEN PERMANENTLY CONNECTED, TESTED AND APPROVED, REMOVE EXISTING 450 KW GENERATOR, ALL UNUSED JUNCTION BOXES, EXPOSED CONDUITS, CONDUCTORS,

2 AFTER FINAL APPROVAL OF NEW GENERATOR COORDINATE WITH OWNER'S FUEL PROVIDER AND ARRANGE FOR THEM TO TEST, POLISH AND TRANSFER EXISTING FUEL TO NEW TANK AND DISPOSE OF 1 ANY EXCESS OR UNUSABLE FUEL PROPERLY. APPROXIMATE LOCATION AND SIZE OF TANK ARE SHOWN, FIELD VERIFY EXISTING CONDITIONS. REMOVE EXISTING TANK. CONCRETE. CONTAMINAT ED SOIL. ETC AND DISPOSE OF PROPERLY PER UNDERGROUND STORAGE TANK REMOVAL SPECIFICATION. DNR AND EPA STANDARDS AND SOIL TESTING RESULTS. PROVIDE SECURED FENCE PER SPECIFICATION SECTION 015000 PART 3.4 D TO PREVENT RESIDENTS FROM FALLING INTO HOLE. STORE REMOVED CLEAN SOIL ON SITE FOR BACKFILL MATERIAL PENDING SOIL TESTING RESULTS. UTILIZE EXISTING CLEAN SOIL TO FILL REMOVED TANK HOLE AND PROVIDE ADDITIONAL SOIL AS REQUIRED. COORDINATE WITH PROFESSIONAL ENVIRONMENTAL ENGINEERS, INC. FOR SOIL TESTING AND PROVIDE ALL REQUIRED LABOR AND MATERIAL TO REMOVE THE EXISTING GENERATOR AND TANK AND LEVEL THE SURFACE, SEED AND MULCH TO RESTORE THE SITE TO MATCH THE EXISTING SURROUNDING AREA.

 $\langle 3 \rangle$ AFTER FINAL APPROVAL OF NEW GENERATOR REMOVE EXISTING GENERATOR CONTROLS. ALSO SEE SHEET E2.0 FOR ADDITIONAL PICTURES AND DESCRIPTION.

 $\langle 4 \rangle$ REMOVE EXISTING WALL MOUNTED JUNCTION BOX, CONDUCTORS, EXPOSED RACEWAY AND GROUT SOLID WALL PENETRATIONS AND SEAL WATER TIGHT TO PREVENT INTRUSION OF ELEMENTS UPON FINAL APPROVAL OF NEW GENERATOR SYSTEM. FILL AND SEED HOLES TO RESTORE LANDSCAPE.

(5) REMOVE EXISTING ROOF ACCESS CAGED LADDER FROM BACK OF BUILDING AND RELOCATE TO SIDE OF

PHOTO 10: PANEL KP-1 LEFT 5



PHOTO 12: ETBR GENERATOR STUB-UPS

STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR



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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, **DESIGN AND CONSTRUCTION**

DEPARTMENT OF MENTAL HEALTH

GENERATOR REPLACEMENT SAINT LOUIS COUNTY HABILITATION CENTER

2312 LEMAY FERRY ROAD SAINT LOUIS, MISSOURI 63125

PROJECT LOCATION

PROJECT # M-2328-01 SITE # 3626 FACILITY # 47630

REVISION: ADDENDUM 1 DATE: 06/20/2025 **REVISION:** DATE REVISION DATE: ISSUE DATE: 12/04/2024

CAD DWG FILE: 23012 DRAWN BY: CHECKED BY: MRV

DESIGNED BY: SIW

SHEET TITLE:

FLOOR PLAN **DEMOLITION &** NEW WORK

SHEET NUMBER:

E1.0 **3 OF 4 SHEETS** 12/04/2024

Pre Bid Meeting M2328-01

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